Portfolio Optimization – SPY, VTI, & AGG (5 Year)

Elizabeth Walker
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Problem

How SPY, VTI and AGG interact with diversified portfolios and behaved during market downturns and recoveries. What is the suggested allocation based on the data?

Analytical Goals

<u>WHY</u>: allow for a better understanding of EFTs and their functionality in the market as well as what to allocate per level of risk for diversified portfolios.

<u>HOW</u>: Using data from the past five years for SPY, VTI and AGG

Data Trend

- SPY and VTI are highly correlated while AGG provides a strong diversification.
- During Market downturns, AGG remained relatively stable.
- VTI slightly outperformed SPY in the long term but maintained a similar risk.

SPY, VTI, & AGG Data

- MarketWatch as data source
- MarketWatch is owned by News Corp
- Presents the data in an organized spreadsheet.

Calculate Performance & Risk Metrics

What was calculated in this process:

- Returns: price differences from day to day for each EFT
- annualized rolling volatility of each EFT
- Sharpe Ratio (below)

SPY	VTI	AGG
1.6659666	1.6095610	0.2154341

Summary

SPY and VTI are highly correlated while AGG provides a strong diversification. During Market downturns, AGG remained relatively stable. VTI slightly outperformed SPY in the long term but maintained a similar risk.

Application

Suggested allocation for medium risk with a strategic tilt toward large-cap stocks:

60% VTI

30% AGG

10% SPY